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AUTHOR Keene, T. Wayne
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ABSTRACT

At a university of about 800 faculty members offering baccalaureate, masters, and doctorate programs a study was conducted to determine the relationships between recommended salary increases and evaluation of performance. Salary increase proposals were submitted for faculty by department chairpersons. Among other items of information, the proposals contained three categories of data treated in this report: (1) recommended salary increase; (2) workload assignment; and (3) chairperson's evaluation of performance. Correlation analysis was applied to the variables for total faculty and for faculty clustered by discipline categories. Correlations between merit salary increase for teaching and evaluation of teaching and evaluation of overall quality were about the same--moderate (positive). Correlation between salary increases for activities other than teaching and evaluations of those activities differed somewhat from teaching. Merit increase for research correlated (positively) with evaluation of research to a considerably higher degree than was the case for teaching. In general, there was higher correlation between the different variables with respect to evaluation than between salary increases and evaluations of the merit increase categories. The conclusions is that correlations are weak enough to cast doubt on the value of a chairperson's evaluation in granting salary increases. (Author)

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Faculty Salary Increases and Evaluation of Selected Performance Variables

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T. Wayne Keene
University of South Florida

ABSTRACT

The study was based on a university of about 800 faculty offering baccalaureate, masters, and doctorate programs. The purpose was to determine the relationships between recommended salary increases and evaluation of performance. Salary increase proposals were submitted for faculty by department chairpersons. Among other items of information, the proposals contained three categories of data treated in this report: (1) recommended salary increase, (2) workload assignment, and (3) chairperson's evaluation of performance.

Category (1) included "merit" increases for teaching, research, and service and "adjustment" increases for promotion and correction of inequity. Category (2) included previous year's assigned workload in teaching, research, academic advising, and service. Category (3) included chairperson's scale evaluation of teaching effectiveness, research, advising, service, and overall quality.

Correlation analysis was applied to the variables for total faculty and for faculty clustered by discipline categories, Business, Education, Engineering, Fine Arts, Humanities, Natural Sciences, and Social Sciences. Correlations between merit salary increase for teaching and evaluation of teaching and evaluation of overall quality were about the same -- moderate (positive). Correlations between salary increases for activities other than teaching and evaluations of those activities differed somewhat from teaching. Merit increase for research correlated (positively) with evaluation of research to a considerably higher degree than was the case for teaching. In general there was higher correlation between the different variables with respect to evaluation than between salary increases and evaluations of the merit increase categories. Conclusion: Correlations weak enough to cast doubt on the value of chairpersons' evaluations in granting salary increases.

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FACULTY SALARY INCREASES AND EVALUATION OF SELECTED PERFORMANCE CATEGORIES

By

T. Wayne Keene, Associate Professor
College of Education
University of South Florida
Tampa, Florida 33620

The general public views college faculty as primarily classroom teachers. While this is probably appropriate for most two-year and four-year college faculty, it is less so for university faculty. The latter, in keeping with the three broad functions associated with universities -- teaching, research and creative activity, public service -- devote considerable time to professional duties other than classroom teaching. There has been considerable comment by the public in recent years indicating belief that activities other than teaching occupy an excessive amount of university faculty time. Without debating the accuracy of such comments, the question next raised is "why is this so?" Those members of academe who agree with this point of view usually reply that the reward system in higher education apparently favors not teaching but research (including publication) and service (including administration as well as public service). This conflict in role and reward experienced by the professor has been debated frequently. A brief but provocative discussion on the issue appeared recently in the University College Quarterly (Brown, 1974).

An exploratory study of the faculty salary increases proposed by college deans and chairpersons for the year 1972-73 was conducted at a large state university. Analysis of variance, numerous descriptive statistics, and several measures of relationships were applied to the data. The intent was to concentrate on interpretations which might be operationalized in a decision-making context. The relationship measures will be emphasized in this paper in order to delimit scope. A major matter of interest was the extent to which

recommended salary increases were reflections of performance evaluations made by chairpersons and deans. Were large merit increases for teaching matched by high evaluations of teaching effectiveness? Did a given evaluation score for research earn more increase than the same score for teaching? Were high evaluations for service recognized by corresponding increases or was service performed "out of the faculty member's hide"? The purpose of the study was to answer these and similar types of questions, search for possible improved approaches to accountability, evaluation, and reward, and establish a base for further research.

Procedures

This discussion will emphasize correlational analyses involving evaluation ratings and salary increases. Workload assignment, though a related issue, will be considered only as necessary for clarity or perspective.[1]

A salary increase proposal form was submitted for faculty members by chairpersons to deans thence to the office of the Vice President for Academic Affairs. The forms included data (in addition to such items as sex, rank, tenured or non-tenured, initial year of employment at the institution, and the like) as follows:

1. Recommended merit increase amounts for (a) teaching, (b) research and creative activity, and (c) service (professional, university, public).
2. Recommended adjustment increase amounts for (a) promotion and (b) correction of possible inequities due to such factors as sex, minority, rank disparity, and the like.

3. Chairperson's evaluation (5 point scale: 1-lowest to 5-highest) of (a) teaching effectiveness, (b) research and creative activity, (c) advising, (d) service, and (e) overall quality.
4. Workload assignment in percentages for the previous year for (a) teaching (graduate; undergraduate), (b) research and creative activity, (c) advising, and (d) service.

Twelve-month faculty, part-time faculty, faculty who had submitted resignations, and ranks other than professor, associate professor, assistant professor, instructor, and lecturer were excluded. The remainder, 635 full-time 9-month faculty, were the subjects of the study.

Results

Table 1 is the basic matrix of Pearson r correlations of the variables discussed in this paper. A point that should be mentioned is that most of the correlation coefficients were statistically significant at the .001 level, a few at .01, and only 2 at the .05 level. To save space, the .01 and .001 level notations are combined. The result is unimportant, since the statistical significance is not practically significant due to the size of N (Snedecor, 1956).

Table 1 about here

Correlation between salary increase for teaching and evaluation of teaching performance is present but only moderate, + .40. It is interesting to note that the correlation between teaching increase and overall evaluation is higher, though only slightly so, + .42. There is a noticeable drop from these levels between teaching increase and other variables -- to + .27 and + .24 for service and research evaluations to virtually no association with

the assignment variables. The higher correlations between teaching increase and teaching evaluation are expected, or certainly hoped for. The similar higher level of correlation with overall quality suggests that the raters tended to associate overall quality with teaching performance.

The correlation between increase for research and evaluation of research performance is moderate, + .49. The correlations between research increase and other variables are low, with one exception. Correlations between research increase and teaching and service evaluations are both - .03, indicating virtually no association. Overall quality evaluation is a different matter. While considerably less than the teaching increase - quality correlation, it is present to a slight degree -- + .23. Noteworthy is the correlation between research increase and research assignment, + .53, which is higher than the correlation between research increase and research evaluation. This suggests the possibility that in research the chairpersons tended to recommend increases based on assignment rather than performance evaluation.

Increase for service and evaluation of service are moderately correlated, + .40. Correlations between service increase and other evaluation variables range from + .15 for research to + .30 for overall quality. This places service about halfway between teaching and research (+ .42 and + .23 respectively) so far as correlation coefficients between those increases and overall quality evaluations are concerned. It is apparent that overall quality is more closely associated with teaching than with research and service so far as salary increases are concerned. The correlations between service increase and the assignment variables ranged from - .12 for teaching to + .34 for service. The fairly close correlations between service increase and service evaluation and assignment (+ .40 and + .34) suggest that the chairpersons were confounding evaluation and assignment ratings when

recommending salary increases for service.

Service is a category of professional activity that remains vague and ill-defined in higher education. It means different things to different people, even when apparently uniform definitions are provided. The range of correlation coefficient values between service increase and evaluation, overall quality, and assignment is smaller than for either of the other two categories of activity -- teaching and research. The ranges are + .30 to + .40 for service, + .12 to + .40 for teaching, and + .23 to + .53 for research. This implies a need to study carefully the use of service as a category in determining salary increases and evaluating performance.

It is interesting to note the correlations among the evaluations themselves. The coefficients among the different categories are about as high as between salary increase and corresponding evaluation. The correlations between overall quality evaluation and teaching, research, and service evaluations are high -- + .73, + .68, and + .67. These coefficients are considerably higher thar the correlations between overall quality evaluation and salary increase for teaching, research, and service. Note that evaluations were scaled ordinal data (1, 2, 3, 4, 5, NA-not applicable) while increase and assignment were, for practical purposes, continuous data of wide range. This circumstance is known to affect some statistics, leading to misinterpretation. It should be mentioned, however, that Spearman's rank-order correlation, a non-parametric statistic, led essentially to the same results as the Pearson r statistic in this study.[2]

Other Considerations

Table 2 contains frequency data of association with respect to salary

increase and evaluation score for teaching, research, and service.

Table 2 about here

The evaluation score, "not applicable" is excluded from the data and computations. The data in Table 2 permits additional analyses of association. It provides added perspective to the Pearson r correlations in Table 1. It should be pointed out that the grouping of salary increases into intervals in Table 2 was not used in the Pearson r computations of Table 1. The Pearson r computations were based on exact increase figures for each individual, including zero "increase." A total of 73 individuals did not receive increases either for teaching, research, or service, a fact not evident in Table 2. The difference between the 635 faculty in the study and the N values is due to the requirement of matched pairs in Table 2. The latter excludes those who received a "not applicable" evaluation score, even if an increase was proposed.

The pattern of "piling up" of frequencies in Table 2 helps explain the general lack of high correlations between activity category and evaluation. The associations appear to tend toward curvilinear relationship rather than the linear relation measured by Pearson r. Further analyses of these apparently non-linear relationships are needed. The small number of evaluation values compared to the range of salary increase introduces problems with respect to the parametric statistical procedures usually employed. Distribution-free statistics would seem to be a promising area of exploration for association patterns experienced with the variables such as those in this study (Siegel, 1956).

The teaching category in Table 2 contains 65 who received no increase. Of these 24, or 37%, were evaluated above average (evaluation scores 4 and 5). Corresponding figures for research and service are 27, or 17%, and

43, or 31%. In other words, it is in teaching that the highest percentage of the zero-increase group received above-average evaluations.

The explanation of above-average evaluation matched by zero increase is not obvious. This would seem particularly true in teaching, if indeed teaching enjoys top priority in the reward system. The approach just used would indicate that research enjoys top priority, since the lowest percentage of zero increase for above-average evaluations occurred in research. Part of the explanation involves the relative size of increase in the three categories of activity. This is suggested in Table 2 by referring to the salary increase interval columns and corresponding N. A more direct explanation is provided by Table 3, which indicates comparative institutional emphasis in salary resource allocations.

Table 3 about here

It is clear that major emphasis was placed on increase for teaching. Of the combined mean increase for teaching, research, and service 58% was devoted to teaching. Research and service account for 24% and 18% respectively. The category Other consists mainly of "equity" or affirmative action adjustments for female faculty. It also includes some male faculty who for various reasons had "fallen behind" their peers in salary level. These increases are presented separately since they were based not on the performance evaluations but on special procedures. The remainder is for promotion adjustments. A relatively small number of promotions were awarded, thus their mean amount is a small portion of the $413.

The Other increases were taken "off the top" of the institution's faculty salary increase allocation and represent a substantial part, 43%, of the $959 overall increase. This was due to a policy decision to move with

speed to correct any inequities which were determined by special studies to exist. In the future a much smaller portion of the salary increases is likely to be in such special categories. This should permit increasingly meaningful analyses of monetary reward as compared to evaluative criteria of faculty performance in the various categories of professional activity.

Summary and Recommendations

An exploratory study of salary increase proposals for 635 nine-month faculty was conducted at a state university. The study was based on data contained in salary increase proposal forms which included (1) recommended merit increase amounts for teaching, research and creative activity, and service; (2) recommended adjustment increase amounts for promotion and inequity correction; (3) chairperson's evaluation of teaching effectiveness, research and creative activity, advising, service, and overall quality; (4) percentage workload assignment in teaching, research, advising, and service. Assignment analyses are excluded from this report in order to delimit scope.

Correlational analysis was applied to the two factors, evaluation and salary increase in three categories of activity -- teaching, research, and service. The correlations summarized here are Pearson r. Positive moderate correlation (+ .40) was found between teaching increase and teaching evaluation and between teaching increase and overall quality evaluation (+ .42). Slightly higher positive correlation was found between research increase and research evaluation (+ .49). There was higher correlation between research increase and research assignment (+ .53) than between increase and evaluation (+ .49). The correlation between service increase and service evaluation was moderate (+ .40), and between service increase and overall

quality evaluation the figure was + .30. In general, correlations were present and positive, but only to moderate degree.

A two-way contingency table of evaluation scores and salary increase intervals suggested that the relationship between these two variables was curvilinear rather than rectilinear. This indicates the need to explore other measures of relationship between evaluation and salary increases if such measures are to have value for planning and decision-making.

Notwithstanding the lack of wide differences in correlation among the teaching, research, and service variables, the mean merit salary increases for the typical faculty member in these three categories were significantly different -- $317 for teaching, $133 for research, and $96 for service. The differences are a reflection of institutional policy which mandated greater recognition of teaching in awarding increases. This mandate operated despite evaluation scores and helps explain lower increases in research and service despite high evaluations in those two categories. Approximately 43%, or $413 of the overall typical increase of $959 was for "off-the-top" adjustments for affirmative action (mainly for female faculty) and promotion increases.

It is recommended that extensive research (including non-parametric and curvilinear techniques) be conducted in the area of faculty performance evaluation methods as related to the faculty accountability and reward system. Particular attention should be given to evaluation methods which involve scaling and weights. Provision should be made for evaluation scales or devices on which equivalencies can be established among various programs or discipline areas. In addition a second dimension, weighting, should be provided for the different categories and sub-categories of professional activity -- teaching, research, public and institutional service, advising, professional development

and renewal, and the like. This is needed so that faculty from different organizational units can be compared on a standardized basis while maintaining different emphases among the several categories.

This discussion has concentrated on monetary reward. Other types of reward, however, are involved. These include promotion, retention, tenure, type of assignment, and the like. Opportunities for equitable professional advancement and development depend on reliable and hopefully uniform systems of evaluation and reward. We must develop and continuously evaluate such systems in order to conduct effective planning, achieve equitable resource allocation, and function productively. Only when higher education demonstrates and interprets progress toward such goals can the public be convinced that resources in higher education are being critically examined and used in the best interests of public policy.

Footnotes

[1]Extensive exploratory statistical analyses of other data from the salary increase proposal forms, including workload assignment variables, have been and are being conducted. These include measures of central tendency and variability, analysis of variance, association measures such as Chi square, Phi, Contingency coefficient, Kendall's tau, Gamma, Cramer's V, Somer's D, Spearman Rho, frequency distributions, and others available from the computer program system, Statistical Package for the Social Sciences (Nie et al, 1970). Those interested in further details should contact the author of this paper.

[2]Spearman Rho coefficients were as follows: teaching -- increase/evaluation + .39, increase/overall quality + .41; research -- increase/evaluation + .60, increase/overall quality + .29; service -- increase/evaluation + .46, increase/overall quality + .32. The Spearman correlation efficiency is about 91% when compared to Pearson r (Siegel, 1956).

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Table 1

CORRELATION MATRIX ON FACULTY SALARY INCREASE VARIABLES

	Increase Teaching	Increase Research	Increase Service	Eval. Teaching	Eval. Research	Eval. Service	Evaluation Overall Quality	Assign. Teach.	Assign. Research	Assign. Service
Increase Teaching										
Increase Research	27**									
Increase Service	24**	10**								
Evaluation Teaching	40**	-03	16**							
Evaluation Research	24**	49**	15**	32**						
Evaluation Service	27**	-03	40**	49**	40**					
Evaluation Overall Quality	42**	23**	30**	73**	68**	67**				
Assignment Teaching	12**	-14**	-12**	-02	-06	-08	-05			
Assignment Research	07	53**	-05	-03	32**	-10*	12**	-13**		
Assignment Service	03	00	34**	11**	11*	28**	22**	-13**	02	

Note. - Decimals omitted; N = 635

* $p < .05$; ** $p < .01$

Table 2

FREQUENCY OF SALARY INCREASE BY INCREMENT
INTERVAL AND PERFORMANCE EVALUATION: TEACHING, RESEARCH, AND SERVICE

Teaching

Eval. \ Incr. $	0 - 199	200-399	400-599	600-799	800-999	1,000-1,199	1,200-1,399	1,400-1,599	1,600-1,799	N	%
5	16	57	57	30	4	3		1		168	28.6
4	27	109	79	12	1	2				230	39.1
3	42	79	28	3						152	25.9
2	19	13	2							34	5.8
1	3	1								4	0.7
N	107	259	166	45	5	5	0	1	0	588	
%	18.2	44.0	28.2	7.7	0.9	0.9	0	0.2	0		100.0

Research

Eval. \ Incr.: $	0 - 199	200-399	400-599	600-799	800-999	1,000-1,199	1,200-1,399	1,400-1,599	1,600-1,799	N	%
5	38	49	16	9	5					117	22.5
4	90	36	13	4	1	1				145	27.8
3	109	21	3	2		1				136	26.1
2	76	5								81	15.5
1	40	2								42	8.1
N	353	113	32	15	6	2	0	0	0	521	
%	67.8	21.7	6.1	2.9	1.2	0.4	0	0	0		100.0

Service

Eval. \ Incr.: $	0 - 199	200-399	400-599	600-799	800-999	1,000-1,999	1,200-1,399	1,400-1,599	1,600-1,799	N	%
5	100	36	5	2						143	27.0
4	136	36	4							176	33.2
3	110	10								120	22.6
2	55		1							56	10.6
1	35									35	6.6
N	436	82	10	2	0	0	0	0	0	530	
%	82.3	15.5	1.9	0.4	0	0	0	0	0		100.0

Table 3

FACULTY SALARY INCREASES BY ACTIVITY CATEGORY

Category	Mean	Range
Teaching	$ 317	$ 0 - 1,500
Research	133	0 - 1,400
Service	96	0 - 1,000
Other	413*	0 - 5,197
Total	$ 959	$ 0 - 5,197

N = 635

* Primarily for "equity" adjustments. See text for explanation.